

III. REMARKS

Claims 1-20 are pending in this application. Claims 1-11 are withdrawn from consideration. Reconsideration in view of the following remarks is respectfully requested.

In the Office Action, claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goto et al. (US Publication No. 2003/0183880), hereinafter "Goto," in view of Wolf, *Silicon Processing for the VLSI Era*, 1986, Volume I, pages 387 and 400, hereinafter "Wolf 1986," and Wolf, *Silicon Processing for the VLSI Era*, 1990, Volume II, page 146, hereinafter "Wolf 1990." Applicants respectfully traverse this rejection for the reasons stated below.

With respect to claims 12 and 20, for example, Applicants submit that the suggested combination does not disclose or suggest all of the claim limitations. Specifically, the claimed invention includes, *inter alia*, "a silicide section positioned in one of a plurality of back-end-of-line (BEOL) layers[,] wherein the silicide section has a silicidation temperature less than a damaging temperature of the plurality of BEOL layers[.]" as recited in claim 12 and claimed similarly in claim 20. As the Office admits, "[Goto] does not disclose using a silicide resistor in a plurality of back-end-of-line layers with a silicidation temperature less than a damaging temperature of the BEOL layers[.]" (Office Action at page 3). Contrary to the Office's assertion, however, Applicants submit that Wolf 1986 and Wolf 1990 do not overcome this deficiency of Goto. Wolf 1990 only discloses that "[a]ll of the group VIII metals react with Si at 600°C or less" (Wolf 1990 at page 146), and Wolf 1986 only discloses that "silicides form [on Tungsten] at temperature > 600°C" (Wolf 1986 at page 400). Such disclosures of the silicidation temperatures of the metals, without more, do not teach or suggest the claimed features. For example, both Wolf references do not disclose or suggest anything regarding a silicide section

Appl. No. 10/707,388

Reply to Office Action of 07/28/05

Page 6 of 8

positioned in one of a plurality of BEOL layers; both Wolf references do not disclose or suggest anything regarding damaging temperature of a plurality of BEOL layers; and both Wolf references do not disclose or suggest that a silicide section has a silicidation temperature less than a damaging temperature of a plurality of BEOL layers. Please note, the absolute value of 600°C or less disclosed in Wolf 1990 is not equivalent to the relative temperature characteristic claimed in the current invention, i.e., a silicidation temperature less than a damaging temperature of the plurality of BEOL layers. In addition, both Wolf references only disclose using the silicide materials for interconnect applications, not for a resistor application as disclosed in the current invention.

The Office asserts that “the resistor could be formed in any layer of the semiconductor device, including BEOL layers[.]” (Office Action at page 3). (Emphasis added). Applicants respectfully traverse this assertion for two reasons. First, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” *MPEP* §2143.01, citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). (Emphasis in original). In this case, the Office does not provide any suggestion, motivation or desirability to modify the cited prior art references to form a resistor in BEOL layers. Second, inherency can not be used to reject a claim under 35 U.S.C. 103(a). *In re Shetty*, 566 F.2d 81, 86 (C.C.P.A. 1977). In a section 103 rejection, the prior art references must teach or suggest all the claim limitations. In this case, the cited prior art references do not teach or suggest that a resistor is formed in BEOL layers. In addition, forming a resistor in BEOL layers does not necessarily flow from the teachings of either Wolf 1986, Wolf 1990, or Goto.

In view of the foregoing, the cited prior art references do not render the claimed invention obvious. Accordingly, Applicants respectfully request withdrawal of the rejection.

Appl. No. 10/707,388

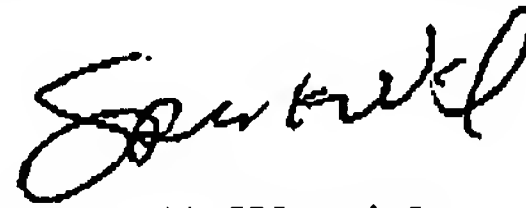
Reply to Office Action of 07/28/05

Page 7 of 8

The dependent claims are believed allowable for the same reasons stated above, as well as for their own additional features.

Applicants respectfully submit that the application is in condition for allowance. Should the Examiner believe that anything further is necessary to place the application in better condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,



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10/14/05

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